

EPA Registration No.  
82572-1  
vol. 1

# Receipt for Section 3

S: 779991

Regulatory Type: Product Registration - Section 3

Resubmission: ☐ Yes ☒ No

Application Type: FFS Waiver Request

Fee for Service: ☒ Yes ☐ No

Print Letter

Enter More Information

Company: 82572 DESERT KING CHILE, LTD.

V

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 91

Product #: 82572-R

Product Name: QUILLAJA EXTRACT

Override:

Me Too  
Section3:

Me Too  
Product Name:

Application Date: 07-Jun-2005

ip

OPP Rec'd Date: 08-Jun-2005

ip

Front End Date: 09-Jun-2005

ip

Risk Manager Send Date: 13-Jun-2005

ip

FFS Due Date:

Negotiated Due Date:

Receipt Content

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

New A1, food use, with exemption. 6/13/05, 100% Waiver Request linked to decision 357857 (LWV).

New Ingredient

Request Date:

New Ingredient

Received Date:

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:

B59 Denise

Where is the data for  
this?



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

Jachit

54/A-3-1

July 14, 2005

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

OPP Decision Number: D-357857  
EPA File Symbol or Registration Number: 82572-R  
Product Name: QUILLAJA EXTRACT  
EPA Application Receipt Date: 08-Jun-2005  
EPA Waiver Request Receipt date: 08-Jun-2005  
EPA Company Number: 82572  
Company Name: DESERT KING CHILE, LTD.

HEATHER R. BJORNSON  
TECHNOLOGY SCIENCES GROUP, INC.  
DESERT KING CHILE, LTD.  
1101 17TH ST., NW, SUITE 500  
WASHINGTON, DC 20036-

SUBJECT: Approval of 100% Small Business Waiver Request

Dear Registrant:

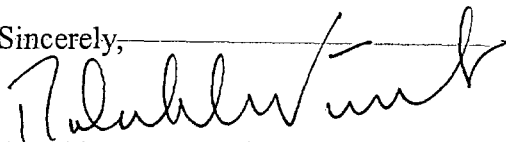
The Office of Pesticide Programs has approved your request for 100% waiver of the pesticide registration fee associated with the action referenced above. The decision review period for this action begins on the date of this letter.

The Action has been identified as Action Code: B59

NEW AI;FOOD USE;MICROBIAL/BIOCHEMICAL WITH EXEMPTION;

If you have any questions, please contact Pesticide Registration Service Fee Ombudsman, at (703) 308-8260.

Sincerely,

  
for Arnold E. Layne, Director  
Information Technology & Resources Management Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

June 13, 2005

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

OPP Decision Number: D-357857  
EPA File Symbol or Registration Number: **82572-R**  
Product Name: **QUILLAJA EXTRACT**  
EPA Receipt Date: 08-Jun-2005  
EPA Company Number: 82572  
Company Name: DESERT KING CHILE, LTD.

HEATHER R. BJORNSON  
TECHNOLOGY SCIENCES GROUP, INC.  
DESERT KING CHILE, LTD.  
1101 17TH ST., NW, SUITE 500  
WASHINGTON, DC 20036

SUBJECT: Receipt of Registration Application and 100% Small Business Waiver Request

Dear Registrant:

The Office of Pesticide Programs has received your application for registration and 100% small business waiver request. If you submitted data with this application, the results of the PRN-86-5 screen will be communicated separately. During the administrative screen, the Office of Pesticide Programs has determined that this Action is subject to a Pesticide Registration Service Fee as defined in the Pesticide Registration Improvement Act.

The Action has been identified as Action Code: **B59**

**NEW AI; FOOD USE; MICROBIAL/BIOCHEMICAL WITH EXEMPTION**

Your request for waiver has been forwarded for review. You will be notified in writing when a determination is made regarding your request. If the determination indicates that payment is due, you will receive instructions for submitting payment at that time.

If you have any questions, please contact the Pesticide Registration Service Fee Ombudsman, at (703) 308-8260.

Sincerely,

A handwritten signature in black ink, appearing to read "Lennis Gayle".

Front End Processing Staff  
Information Technology & Resources Management Division

# Fee for Service

This package includes the following

☒ New Registration

☐ Amendment

☒ Waiver Request and type

☒ 100% ☐ 50% ☐ IR-4 ☐ Minor ☐ Fed/state

for Division

☐ RD

☐ AD

☒ BPPD

Risk Mgr.

91

Receipt Nos. S-

77 9989

EPA File Symbol/Reg. No.

82572-R

Pin-Punch Date:

6/8/05

☐ This item is NOT subject to FFS action.

☒ Studies included

## Action Code:

Requested: B.59

Granted: B.59

Amount due: \$25,000

## Parent/Child Decisions:

☐ Voluntary Payment Request

% Reduction \_\_\_\_\_

Reviewer: Donna J. Luby

Date: 6-10-05

Remarks: (use back if needed)



Receipt for Section 3			
S: 779989			
Regulatory Type:	Product Registration - Section 3	Re-submission:	<input type="radio"/> Yes <input checked="" type="radio"/> No
Application Type:	New Registration	Pre-For Sale:	<input checked="" type="radio"/> Yes <input type="radio"/> No
Company:	82572 DESERT KING CHILE, LTD.	V	
Risk Manager:	Biologicals & Pollution Prevention Division, PM Team S1		
Product #:	82572-R	Product Name:	GUILLAJA EXTRACT
Exempted:			
Me Too Section3:		Me Too Product Name:	
Application Date:	07-Jun-2005	OPP Rec'd Date:	08-Jun-2005
Front End Date:	09-Jun-2005	Risk Manager Send Date:	13-Jun-2005
FFS Due Date:		Negotiated Due Date:	
OPP Target Date:			
Fast Track:	<input type="checkbox"/>	New Ingredient:	<input type="checkbox"/>
Receipt Description:		<div> <div> New Ingredient  Received Date: </div> <div> New Ingredient  Received Date: </div> </div>	
New A1. food use, with exemption. 6/13/05, B59 Receipt w/ Waiver request (LVVV).			
Printed:	<input type="checkbox"/>	Signature Date:	
		Printed:	<input type="checkbox"/>
		Signature Date:	

Print Letter  
Enter More Information

Receipt Content  
Study

sec.  
 357857

Receipt for Section 3

S: 779939

Regulatory Type: Product Registration - Section 3

Regulatory: ☐ Yes ☒ No

Application Type: New Registration

Fee For Service: ☒ Yes ☐ No

Company: 82572 DESERT KING CHILE, LTD.

V

Risk Manager: Biologicals & Pollution Prevention Division, PM-Team 81

Product #: 82572-R

Product Name: GUILLAJA EXTRACT

Unexposed:

Me Too Section 3:

Me Too Product Name:

Application Date: 07-Jun-2005

OPP Rec'd Date: 08-Jun-2005

Front End Date: 09-Jun-2005

Risk Manager Send Date:

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

New A1. food use, with exemption.

New Ingredient Request Date:

New Ingredient Review Date:

New Ingredient Approval Date:

Boilerplate: ☐

Signature Date:

Printed: ☐

Signature Date:

Receipt Content

Study

Print Letter

Enter More Information



# Receipt for Section 3

S: 779991

Regulatory Type: Product Registration - Section 3

How many copies? ☐ None ☒ One ☐ Two

Application Type: FFS Waiver Request

Fee For Service: ☒ Yes ☐ No

Company: 82572 DESERT KING CHILE, LTD. ☒

Print Letter

Enter More Information

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 91

Product #: 82572-R Product Name: GUILLAJA EXTRACT

Override: ☐

Me Too Section 3: ☐ Me Too Product Name:

Application Date: 07-Jun-2005 ☒

OPP Rec'd Date: 08-Jun-2005 ☒

Receipt Content

Front End Date: 09-Jun-2005 ☒

Risk Manager Send Date:  ☒

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐ New Ingredient: ☐

Receipt Description:

New A1, food use, with exemption.

New Ingredient Request Date:

New Ingredient Received Date:

Form A: ☐ Signature Date:

Form B: ☐ Signature Date:

# Receipt for Section 3

S: 779991

Regulatory Type: Product Registration - Section 3

Responsible: ☒ Yes ☐ No

Application Type: FFS Waiver Request

Responsible: ☒ Yes ☐ No

Company: 62572 DESERT KING CHILE, LTD.

V

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 91

Product #: 62572-R Product Name: GUILLAJA EXTRACT

Product #:

Me Too

Section 3:

Me Too

Product Name:

Application Date: 07-Jun-2005

OPP Rec'd Date: 08-Jun-2005

Front End Date: 09-Jun-2005

Risk Manager Send Date:

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track:

Receipt Description:

New A1, food use, with exemption.

New Ingredient:

Revised Date:

New Ingredient:

Revised Date:

Page:

Signature Date:

Page:

Signature Date:

Print Letter

Enter More Information

Receipt Content



**WASHINGTON**

1101 17th Street, N.W.  
Suite 500  
Washington, D.C. 20036  
Telephone 202 223-4392  
Fax 202 872-0745

Sheryl Reilly  
Chief, Biochemical Pesticide Branch  
Biopesticides and Pollution Prevention Division (7511C)  
Office of Pesticide Programs, EPA  
1801 South Bell Street, CM2  
Arlington, VA 22202

June 7, 2005

**RE: Quillaja Extract**  
**Active Ingredient: Quillaja saponins (7.5%)**

**Application for PRIA Category B59 – New AI, Food Use,  
with exemption**

**SACRAMENTO**

712 Fifth Street  
Suite A  
Davis, CA 95616  
Telephone 530 757-1298  
Fax 530 757-1299

Dear Dr. Reilly:

Technology Sciences Group Inc., on behalf of Desert King Chile, Ltd, hereby submits an application for a new product containing the biochemical active ingredient **Quillaja saponins**, for use as a nematicide.

This application fits under **PRIA Category B59** for a new active ingredient, food use, with exemption. This application contains product chemistry, toxicity ecotoxicity, and efficacy data for review. A small business 100% waiver of the required PRIA fee is requested, and appropriate documentation is included.

Enclosed you will find the following in support of this application:

- 1) Application form;
- 2) Small business 100% fee waiver certification;
- 3) Confidential Statement of Formula;
- 4) Certification with Respect to Citation of Data form;
- 5) Data Matrix, including publicly releasable "blacked-out" version;
- 6) Five (5) copies of the product label;
- 7) Data Volumes 1 through 28 – refer to the Transmittal Document for a complete listing of data volume titles and corresponding OPPTS Guideline Numbers;
- 8) Letter of Authorizing TSG to act as Desert Kings Agent; and
- 9) Letter from Janet Anderson (not dated) discussing this products review in BPPD.

**CANADA**

275 Slater Street  
Suite 900  
Ottawa, Ontario  
K1P 5H9  
Telephone 613 247-6285  
Fax 613 236-3754

E-mail [tsg@tsgusa.com](mailto:tsg@tsgusa.com)

<http://www.tsgusa.com>

June 7, 2005

Quillaja Extract - Application for Registration

Please note the following with regards to this application:

Desert King Chile, Ltd. has a US subsidiary, Desert King International (7024 Manya Circle, San Diego, CA 92154); they are co-sponsoring this application. You will notice signatures from Paulo Tamargo of Desert King Chile, Ltd, Paul N. Hiley and Rodrigo Otero from Desert King International on various documents. Lastly, Desert King Chile, Ltd. does not have an EPA Company number and will need one assigned.

Please do not hesitate to contact me directly at (202) 828-8945 or via e-mail [hbjornson@tsgusa.com](mailto:hbjornson@tsgusa.com) with any questions and/or concerns.

Sincerely,



Heather R. Bjornson  
Regulatory Consultant for Desert King Chile, Ltd.

cc: Rodrigo Otero, Desert King International  
Paulo Tamargo, Desert King Chile, Ltd.

# VOLUME 1 OF 28 SUBMISSION

## TRANSMITTAL DOCUMENT

### NAME AND ADDRESS OF SUBMITTER:

Desert King Chile, Ltd.  
Antonio Bellet 77 Of. 401  
Providencia, Santiago, Chile

### REGULATORY ACTION:

Submission of an application for registration of Quillaja Extract.

### TRANSMITTAL DATE:

June 7, 2005

### LIST OF SUBMITTED STUDIES:

MRID NUMBER	VOLUME NUMBER	EPA STUDY TITLE	GUIDELINE NUMBER
	1 of 28	(Transmittal Document)	-----
	2 of 28	<i>Quillaja Extract</i> Product Properties - Part A	830.1100 – 830.1800
	3 of 28	<i>Quillaja Extract</i> Product Properties – Part B	830.6302 – 830.7950
	4 of 28	Acute Oral Toxicity of Quillaja Extract	870.1100
	5 of 28	Acute Dermal Toxicity of Quillaja Extract	870.1200
	6 of 28	Acute Eye Irritation of Quillaja Extract	870.2400
	7 of 28	Acute Dermal Irritation of Quillaja Extract	870.2500
	8 of 28	Dermal Sensitization of Quillaja Extract	870.2600
	9 of 28	90-Day Oral Toxicity in Rats	870.3100
	10 of 28	Chronic Toxicity of Quillaja Extract in Mice	870.4100
	11 of 28	Chronic Toxicity/Carcinogenicity of Quillaja Extract	870.4300

12 of 28	Acute Toxicity of Quillaja Extract in Fish	850.1075
13 of 28	Acute Avian Oral Toxicity	850.2100
14 of 28	Response to Tier II Biochemical Pesticide Data Requirements	850.2100-850.4100 870.1300-870.5000 880.3550-880.4250
15 of 28	Efficacy of <i>Quillaja Extract</i> on White Rice	810.2700 (d)
16 of 28	Efficacy of <i>Quillaja Extract</i> on Cabernet Sauvignon Grape Plants III	810.2700 (d)
17 of 28	Efficacy of <i>Quillaja Extract</i> on Chardonnay Grape Plants	810.2700 (d)
18 of 28	Efficacy of <i>Quillaja Extract</i> on Cabernet Sauvignon Grape Plants I	810.2700 (d)
19 of 28	Efficacy of <i>Quillaja Extract</i> on Butternut Squash Plants II	810.2700 (d)
20 of	Efficacy of <i>Quillaja Extract</i> on Butternut Squash Plants	810.2700 (d)
21 of	Efficacy of <i>Quillaja Extract</i> on Zucchini Plants	810.2700 (d)
22 of	Efficacy of <i>Quillaja Extract</i> on Carrot Plants	810.2700 (d)
23 of	Efficacy of <i>Quillaja Extract</i> on Cabernet Sauvignon Grape Plants II	810.2700 (d)
24 of	Efficacy of <i>Quillaja Extract</i> on Walnut Plants	810.2700 (d)
25 of	Efficacy of <i>Quillaja Extract</i> Tomato Plants	810.2700 (d)
26 of	Efficacy of <i>Quillaja Extract</i> on Tomatoes Plants II	810.2700 (d)
27 of	Efficacy of <i>Quillaja Extract</i> on Lilly Bulb Plants	810.2700 (d)
28 of	Efficacy of <i>Quillaja Extract</i> on Butternut Squash Plants III	810.2700 (d)



COMPANY NAME:

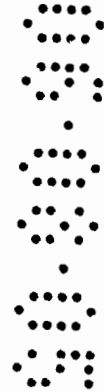
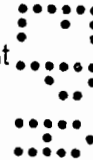
Desert King Chile, Ltd.

COMPANY OFFICIAL:

Heather R. Bjornson  
Heather R. Bjornson, Regulatory Agent

COMPANY CONTACT:

Heather R. Bjornson, Regulatory Agent  
Technology Sciences Group, Inc.  
1101 17th Street, N.W. Ste. 500  
Washington, DC 20036  
(202) 828-8945





**\*\*Sent via fax (703) 305-5361 and mail\*\***

Document Processing Desk (COADR)  
Office of Pesticide Programs (7504C)  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

May 26, 2005

**RE: Desert King International  
Letter of Authorization**

Desert King International has an agreement with Technology Sciences Group Inc. (TSG) to provide regulatory assistance regarding the registration of pesticide products. With this letter we confirm TSG as an authorized agent in all matters concerning the registration of pesticide products with the Agency. This letter constitutes authorization for the Office of Pesticide Programs to discuss the status of these registrations and supporting data with representatives of TSG, including disclosure of trade secret information, and acknowledges that official correspondence from the Office of Pesticide Programs can be directed to the agent. Please note, however, that the company address remains the official mailing address for EPA purposes. The full name and mailing address of the agent is as follows:

Heather R. Bjornson  
Technology Sciences Group, Inc.  
1101 17th Street, N.W.  
Suite 500  
Washington, D.C. 20036  
Tel. (202) 828-8945  
Fax (202) 872-0745  
Email: [hbjornson@tsgusa.com](mailto:hbjornson@tsgusa.com)



If there are any questions or comments please contact Paul N. Hiley, President of Desert King International, Tel. (619) 429-5222 or fax (619) 429-5001.

Sincerely,

Paul N. Hiley  
President of Desert King International



United States  
Environmental Protection Agency  
Washington, DC 20460

☒ Registration  
☐ Amendment  
☐ Other

OPP Identifier Number

## Application for Pesticide - Section I

1. Company/Product Number <b>82572-R</b>	2. EPA Product Manager Sheryl Reilly	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Quillaja Extract	PM# <b>91</b> BPPD/Biochemical Pesticides	
5. Name and Address of Applicant (Include ZIP Code) Desert King Chile, Ltd. Antoinio Bellet 77 Of.401 Providencia, Santiago, Chile <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

## Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

PRIA Category B59 - New AI, Food Use, with exemption. Please confirm with Heather Bjornson via fax (202) 872-0745 or e-mail: hbjornson@tsgusa.com.

## Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
				<input checked="" type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 5 gal pale; 30 & 55 g drum; 270g tote		5. Location of Label Directions <input checked="" type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				<input type="checkbox"/> Other _____	

## Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Heather R. Bjornson, Technology Sciences Group, Inc.		Title Consultant for Desert King Chile, Ltd.		Telephone No. (Include Area Code) (202) 828-8964	
<b>Certification</b> I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received (Stamped) 
2. Signature 		3. Title Regulatory Consultant			
4. Typed Name Heather R. Bjornson		5. Date June 7, 2005			



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**401 M Street, S.W.**  
**WASHINGTON, D.C. 20460**

**Paperwork Reduction Act Notice:** The public reporting burden for this collection of information is estimated to average 1.25 hours per response for registration and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Information Management Division (2137), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460. Do not send the completed form to this address.

**Certification with Respect to Citation of Data**

Applicant's/Registrant's Name, Address, and Telephone Number Desert King Chile, Ltd. Antonio Bellet 77 Of. 401, Providencia, Santiago, Chile Tel. 800 982 2235	EPA Registration Number/File Symbol
Active Ingredient(s) and/or representative test compound(s) Quillaja saponins	Date June 7, 2005
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) Terrestrial: Food crop, Nonfood	Product Name Quillaja Extract

**NOTE:** If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

**SECTION I: METHOD OF DATA SUPPORT (Check one method only)**

<input type="checkbox"/> I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).	<input checked="" type="checkbox"/> I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).
--	---

**SECTION II: GENERAL OFFER TO PAY**

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☒ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA.

**SECTION III: CERTIFICATION**

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

**I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.**

Signature <i>Heather R. Bjornson</i>	Date June 7, 2005	Typed or Printed Name and Title Heather R. Bjornson, Regulatory Agent
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Form Approved OMB No, 2070-0060

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
401 M Street, S.W.  
WASHINGTON, D.C. 20460

EPA

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**Paperwork Reduction Act Notice:** The Public reporting burden for this collection of information is estimated to average 0.25 hours per response for registration activities and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding the burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, CPP Information Management Division (2137) U.S. Environmental Protection Agency 401 M Street, S.W., Washington, DC 20460. Do not send the form to this address.

DATA MATRIX

Date June 7, 2005			EPA Reg. No./File Symbol		Page 1 of 5
Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of . 401 Providencia, Santiago, Chile			Product Quillaja Extract		
Ingredient Quillaja saponins					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
OPPTS 830.1550	Product Identity and Composition		Desert King Chile	OWN	
OPPTS 830.1600	Description of Materials Used to Manufacture Product		Desert King Chile	OWN	
OPPTS 830.1600	Description of Production Process		Desert King Chile	OWN	
OPPTS 830.1620	Description of the Formulation Process		Desert King Chile	OWN	
OPPTS 830.1670	Discussion of the Formation of Impurities		Desert King Chile	OWN	
OPPTS 830.1750	Certified Limits		Desert King Chile	OWN	
OPPTS 830.1800	Enforcement Analytical Method		Desert King Chile	OWN	
OPPTS 830.6302	Color		Desert King Chile	OWN	
OPPTS 830.6303	Physical State		Desert King Chile	OWN	
OPPTS 830.6304	Odor		Desert King Chile	OWN	
OPPTS 830.6313	Stability to normal and elevated temperatures, metals and metal ions-TGAI		Desert King Chile	OWN	
Signature <i>Heather R. Bjornson</i>			Name and Title Heather R. Bjornson, Regulatory Agent		Date June 7, 2005





Form Approved OMB No. 2070-0060

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
401 M Street, S.W.  
WASHINGTON, D.C. 20460

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## DATA MATRIX

Date June 7, 2005			EPA Reg. No./File Symbol		Page 2 of 5
Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of. 401 Providencia, Santiago, Chile			Product Quillaja Extract		
Ingredient Quillaja saponins					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
OPPTS 830.6314	Oxidation/Reduction	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.6315	Flammability	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.6317	Storage Stability	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.6319	Miscibility	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.6320	Corrosion Characteristics	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7000	pH	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7100	Viscosity	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7200	Melting Point/ melting range - PAI	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7220	Boiling Point/boiling range - PAI	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7300	Density, Bulk Density, Specific Gravity	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7750	Partition coefficient - PAI	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7840, 830. 7860	Water solubility - PAI	Not yet assigned	Desert King Chile	OWN	
OPPTS 830.7950	Vapor Pressure	Not yet assigned	Desert King Chile	OWN	
OPPTS 870.1100	Acute Oral Toxicity	Not yet assigned	Desert King Chile	OWN	
OPPTS 870.1200	Acute Dermal Toxicity	Not yet assigned	Desert King Chile	OWN	
Signature <i>Heather R. Bjornson</i>			Name and Title Heather R. Bjornson, Regulatory Agent		Date June 7, 2005





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**DATA MATRIX**

Date June 7, 2005			EPA Reg. No./File Symbol		Page 3 of 5
Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of. 401 Providencia, Santiago, Chile			Product  Quillaja Extract		
Ingredient Quillaja saponins					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
OPPTS 870.1300	Acute Inhalation Toxicity	Not yet assigned	Desert King Chile	OWN	WAIVER REQUEST
OPPTS 870.2400	Primary Eye Irritation	Not yet assigned	Desert King Chile	OWN	
OPPTS 870.2500	Primary Dermal Irritation	Not yet assigned	Desert King Chile	OWN	
OPPTS 870.2600	Dermal Sensitization	Not yet assigned	Desert King Chile	OWN	
OPPTS 870.3100	Subchronic Dietary Toxicity	Not yet assigned	Desert King Chile	PL	
OPPTS 870.3250	90-Day Dermal Toxicity				WAIVER REQUEST
OPPTS 870.3465	90-Day Inhalation Toxicity				WAIVER REQUEST
OPPTS 870.3700	Teratogenicity				WAIVER REQUEST
OPPTS 870.4100	Chronic Dietary Toxicity	Not yet assigned	Desert King Chile	PL	
OPPTS 870.4300	Chronic Toxicity/Carcinogenicity	Not yet assigned	Desert King Chile	PL	
OPPTS 870.5000	Genotoxicity				WAIVER REQUEST
OPPTS 850.1010	Aquatic Invertebrate Toxicity				WAIVER REQUEST
OPPTS 850.1075	Acute Toxicity of Freshwater Fish (Carp)	Not yet assigned	Desert King Chile	OWN	
OPPTS 850.2100	Avian Oral Toxicity	Not yet assigned	Desert King Chile	OWN	
OPPTS 850.2200	Avian Dietary Toxicity				WAIVER REQUEST
OPPTS 850.4100	Non-Target Plant Testing				WAIVER REQUEST
Signature <i>Heather R. Bjornson</i>			Name and Title Heather R. Bjornson, Regulatory Agent		June 7, 2005



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## DATA MATRIX

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Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of . 401 Providencia, Santiago, Chile	Product  Quillaja Extract	

Ingredient Quillaja saponins

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
OPPTS 880.3550	Immunotoxicity				WAIVER REQUEST
OPPTS 880.4350	Non-Target Insect Testing				WAIVER REQUEST
OPPTS 810.2700	Efficacy of Quillaja Extract on White Rice	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Cabernet Sauvignon Grape Plants III	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Chardonnay Grape Plants III	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Cabernet Sauvignon Grape Plants I	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Butternut Squash Plants II	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Butternut Squash Plants	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Zucchini Plants	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Carrot Plants	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Cabernet Sauvignon Grape Plants II	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Walnut Plants	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Tomato Plants	Not yet assigned	Desert King Chile	OWN	

Signature 	Name and Title Heather R. Bjornson, Regulatory Agent	Date June 7, 2005
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DATA MATRIX

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**Applicant's/Registrant Name and Address**  
Desert King Chile  
Antonio Bellet 77 Of. 401  
Providencia, Santiago, Chile

**Product**  
Quillaja Extract

**Ingredient** Quillaja saponins

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
OPPTS 810.2700	Efficacy of Quillaja Extract on Tomato Plants II	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Lilly Bulb Plants	Not yet assigned	Desert King Chile	OWN	
OPPTS 810.2700	Efficacy of Quillaja Extract on Butternut Squash Plants III	Not yet assigned	Desert King Chile	OWN	

**Signature**  
*Heather R. Bjornson*

**Name and Title**  
Heather R. Bjornson, Regulatory Agent

**Date**  
June 7, 2005



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Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of . 401 Providencia, Santiago, Chile		Product  Quillaja Extract			
Ingredient Quillaja saponins					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
Signature <i>Heather R. Bjornson</i>			Name and Title Heather R. Bjornson, Regulatory Agent		Date June 7, 2005



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Date June 7, 2005	EPA Reg. No./File Symbol	Page 2 of 5
Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of. 401 Providencia, Santiago, Chile	Product Quillaja Extract	

Ingredient Quillaja saponins

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
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			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	

Signature <i>Heather R. Bjornson</i>	Name and Title Heather R. Bjornson, Regulatory Agent	Date June 7, 2005
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**Applicant's/Registrant Name and Address**  
Desert King Chile  
Antonio Bellet 77 Of. 401  
Providencia, Santiago, Chile

**Product**  
Quillaja Extract

**Ingredient** Quillaja saponins

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Desert King Chile	OWN	WAIVER REQUEST
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	PL	
					WAIVER REQUEST
					WAIVER REQUEST
					WAIVER REQUEST
			Desert King Chile	PL	
			Desert King Chile	PL	
					WAIVER REQUEST
					WAIVER REQUEST
			Desert King Chile	OWN	
			Desert King Chile	OWN	
					WAIVER REQUEST
					WAIVER REQUEST

**Signature**

**Name and Title**  
Heather R. Bjornson, Regulatory Agent

June 7, 2005





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Ingredient Quillaja saponins

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
					WAIVER REQUEST
					WAIVER REQUEST
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	

Signature <i>Heather R. Bjornson</i>	Name and Title Heather R. Bjornson, Regulatory Agent	Date June 7, 2005
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Applicant's/Registrant Name and Address Desert King Chile Antonio Bellet 77 Of. 401 Providencia, Santiago, Chile		Product  Quillaja Extract			
Ingredient Quillaja saponins					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Desert King Chile	OWN	
			Desert King Chile	OWN	
			Desert King Chile	OWN	
Signature 			Name and Title Heather R. Bjornson, Regulatory Agent		Date June 7, 2005

# Quillaja Extract

A Bio-Pesticide

- *For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi and Enhancement of Plant Growth Development*
- *For use in vineyards, orchards and field crops*
- *For ornamental use to control plant parasitic nematodes*

Active Ingredient:

Quillaja saponins..... 7.50%

Other Ingredients ..... 92.50%

Total ..... 100.00%

**Keep Out of Reach of Children**

**CAUTION**

See back side for additional precautionary statements

EPA Reg. No.: XXXXX-XX

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Net Contents:

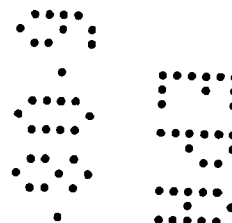
Manufactured for:

Desert King Chile

77 Antonio Bellet, Suite 401

Providencia, Santiago

Chile



Desert King  
Label Version (2); June 7, 2005  
Page 1 of 13

<b>FIRST AID</b>	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

CAUTION: Harmful if swallowed and if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

### **ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### **Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Shoes and socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment and the restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas without protective clothing during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls

Chemical-resistant gloves made of any waterproof material

Shoes and socks

### **NON - AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### **Application:**

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### **Mixing:**

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with water, then add this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

#### **Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematicides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

#### **Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.



### Application Rates

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

**Table 1**

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Grapes</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 2.5 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4.0 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Strawberry</b>	<b>1.5 – 4 gallons</b>	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 1,000 to 5,000 or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	<b>2.5 – 4 gallons</b>	Apply 1 to 7 days prior to planting to area to be planted.
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng,	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
horseradish, potato, radish, turnip, yam		
<b>Ornamentals Bulbs</b>	<b>2.5 – 4 gallons</b>	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2  
Table 2

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
<b>Grapes</b>	Powdery Mildew,	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.
<b>Avocado</b>	Root Rot, <i>Phytophthora cinnamoni</i>	2 – 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring when soil temperatures are optimum to root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.

Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Benefit	Dosage	Comment
<b>Grapes</b>	Increased Fruit yield and root development	1 – 2 qts	Apply at root flush and at 7-14 day intervals for 8 – 10 weeks.
<b>Citrus</b>	Increased Root Development	1 – 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
<b>Strawberry</b>	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 – 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.

For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.

**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of material that are compatible with pesticide and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the areas intended for treatment

A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line between 5,000 and 10,000 ppm. Normally use between 1 and a maximum of 2 gallons per 200 gallons of water.

Do not allow air in the line prior to injecting Quillaja Extract or density of Quillaja Extract will cause swelling of the line due to foam and prevent uptake of material. If a pesticide supply tank is used, add Quillaja Extract after water at least half full in the tank to prevent excessive foaming. Agitation should be minimized in the

supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30-60 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

It is highly recommended that the soil be wetted first with irrigation system to wet the soil profile and eliminate any dry areas under the irrigated area down to two feet of soil, thereafter Quillaja Extract should be applied in a the last few hours of the irrigation, followed with enough clean out water run through the system to remove Quillaja Extract. There generally will be some level of foam at the base of the wetted area until it dissolves (generally within 30 minutes after application, depending on temperatures and amount of water following application.

Lack of effectiveness of Quillaja Extract or Crop Injury can result from non-uniform distribution of treated water.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

If you have any questions about calibration of this product, you should contact State Extension Service specialists, equipment manufacturers, chemigation experts or the Distributor of this product.

Avoid any runoff of this product in to waterways or ponds that would result in contamination of fish,

Posting is not necessary following application of this product when the label is accurately followed.

**Non-Agricultural uses: Turfgrasses**

Crop	Pest	Dosage Quillaja Extract
TURFGRASSES For use on golf courses and sod farms	<i>Anguina pacifica</i> nematode only	9.0 fl oz./1000 sq.ft. or 3.0 Gallons/Acre

Apply specified dosage in a minimum of 5-7 Gallons of water per 1000 sq.ft. (approximately 220-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

Quillaja Extract is water soluble and does not require additional water application through Sprinkler following application. Repeat application of Quillaja Extract every 5-10 days following first application. Additional applications to break the life cycle of the nematode should be repeated 2- 4 times within 60 days to significantly reduce this pest problem in one season.

Do not water turf or sod for at least 12 hours following application of Quillaja Extract.

Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply within 10 feet of any surface body of water or fairway surface drain.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

3 Gallons of Quillaja Extract in 300 Gallons of water is a 1% Solution of Quillaja Extract in water.  
3 Gallons of Quillaja Extract in 300 Gallons of water is 10,000 ppm of Quillaja Extract product in water.

#### **LIMITED WARRANTY**

Manufacturer warrants that this product is suited for the labeled use when applied according to label directions. Manufacturer makes no warranty of merchantability. There are no warranties that extend beyond the description on this label and in no event shall the manufacturer be liable for any consequential damages.



*[ ] indicate optional text*

**Optional Label Claims:**

- **Controls and/or** Suppresses certain foliar diseases such as Powdery Mildew(s)
- Increases Crop Yield by Suppressing [Nematodes], [Powdery Mildew] and by stimulating root development
- Enhances Crop Yield and Growth of [Grapes] [Sweet Corn], [Berry] [Lilly Bulbs] [Lemon] Crops by Increasing [Numeric Counts] [Bunch Weights] [Height]
- Increases the Bulb Weight of [Lilly bulbs] [Easter Lilly bulbs]
- For use also on Vegetable Crops Such as: Carrots, Peppers, Tomatoes, Broccoli, Squash, and Beets.

# Quillaja Extract

A Bio-Pesticide

- *For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi and Enhancement of Plant Growth Development*
- *For use in vineyards, orchards and field crops*
- *For ornamental use to control plant parasitic nematodes*

Active Ingredient:

Quillaja saponins..... 7.50%  
Other Ingredients ..... 92.50%  
Total ..... 100.00%

**Keep Out of Reach of Children**

**CAUTION**

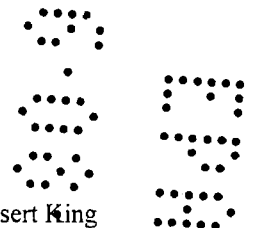
See back side for additional precautionary statements

EPA Reg. No.: XXXXX-XX

EPA Est. No.: XXXXX-XX-XX

Net Contents:

Manufactured for:  
Desert King Chile  
77 Antonio Bellet, Suite 401  
Providencia, Santiago  
Chile



Desert King  
Label Version (2); June 7, 2005  
Page 1 of 13

<b>FIRST AID</b>	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

CAUTION: Harmful if swallowed and if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

### **ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### **Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

Long-sleeved shirt and long pants

Chemical-resistant gloves made of any waterproof material

Shoes and socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment and the restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas without protective clothing during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls

Chemical-resistant gloves made of any waterproof material

Shoes and socks

### **NON - AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### **Application:**

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### **Mixing:**

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with water, then add this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

#### **Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematicides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

#### **Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.

### Application Rates

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

**Table 1**

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Grapes</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 2.5 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4.0 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Strawberry</b>	<b>1.5 – 4 gallons</b>	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 1,000 to 5,000 or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	<b>2.5 – 4 gallons</b>	Apply 1 to 7 days prior to planting to area to be planted.
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng,	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
horseradish, potato, radish, turnip, yam		
<b>Ornamentals Bulbs</b>	<b>2.5 – 4 gallons</b>	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2

Table 2

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
<b>Grapes</b>	Powdery Mildew,	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.
<b>Avocado</b>	Root Rot, <i>Phytophthora cinnamoni</i>	2 – 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring when soil temperatures are optimum to root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.



Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT Rate Per Acre			
Crop	Benefit	Dosage	Comment
<b>Grapes</b>	Increased Fruit yield and root development	1 – 2 qts	Apply at root flush and at 7-14 day intervals for 8 – 10 weeks.
<b>Citrus</b>	Increased Root Development	1 – 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
<b>Strawberry</b>	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 – 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.

For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.

**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

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A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line between 5,000 and 10,000 ppm. Normally use between 1 and a maximum of 2 gallons per 200 gallons of water.

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supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30-60 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

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Crop	Pest	Dosage Quillaja Extract
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Apply specified dosage in a minimum of 5-7 Gallons of water per 1000 sq.ft. (approximately 220-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

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Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply within 10 feet of any surface body of water or fairway surface drain.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

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- Enhances Crop Yield and Growth of [Grapes] [Sweet Corn], [Berry] [Lilly Bulbs] [Lemon] Crops by Increasing [Numeric Counts] [Bunch Weights] [Height]
- Increases the Bulb Weight of [Lilly bulbs] [Easter Lilly bulbs]
- For use also on Vegetable Crops Such as: Carrots, Peppers, Tomatoes, Broccoli, Squash, and Beets.

# Quillaja Extract

A Bio-Pesticide

- For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi and Enhancement of Plant Growth Development
- For use in vineyards, orchards and field crops
- For ornamental use to control plant parasitic nematodes

## Active Ingredient:

Quillaja saponins.....	7.50%
Other Ingredients .....	<u>92.50%</u>
Total .....	100.00%

**Keep Out of Reach of Children**

**CAUTION**

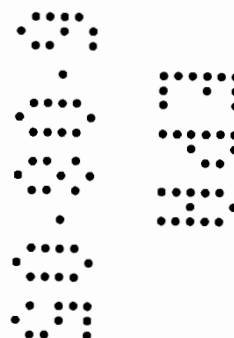
See back side for additional precautionary statements

EPA Reg. No.: XXXXX-XX

EPA Est. No.: XXXXX-XX-XX

Net Contents:

Manufactured for:  
Desert King Chile  
77 Antonio Bellet, Suite 401  
Providencia, Santiago  
Chile



FIRST AID	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed and if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### Personal Protective Equipment (PPE)

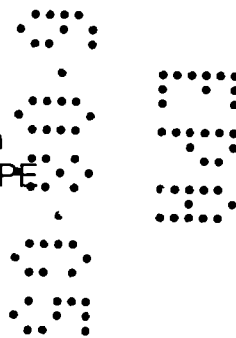
Applicators and other handlers must wear:

Long-sleeved shirt and long pants

Chemical-resistant gloves made of any waterproof material

Shoes and socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.





### **User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment and the restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas without protective clothing during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls

Chemical-resistant gloves made of any waterproof material

Shoes and socks

### **NON - AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### **Application:**

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### **Mixing:**

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with water, then add this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

#### **Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematicides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

#### **Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.

### Application Rates

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

**Table 1**

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Grapes</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 2.5 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4.0 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
Strawberry	1.5 – 4 gallons	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 1,000 to 5,000 or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	2.5 – 4 gallons	Apply 1 to 7 days prior to planting to area to be planted.
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	2.5 – 4 gallons	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng,	2.5 – 4 gallons	Apply prior to planting to row area to be planted.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
horseradish, potato, radish, turnip, yam		
<b>Ornamentals Bulbs</b>	<b>2.5 – 4 gallons</b>	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2  
Table 2

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
<b>Grapes</b>	Powdery Mildew,	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.
<b>Avocado</b>	Root Rot, <i>Phytophthora cinnamoni</i>	2 – 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring when soil temperatures are optimum to root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.

Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Benefit	Dosage	Comment
Grapes	Increased Fruit yield and root development	1 – 2 qts	Apply at root flush and at 7-14 day intervals for 8 – 10 weeks.
Citrus	Increased Root Development	1 – 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
Strawberry	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 – 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.

For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.

**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of material that are compatible with pesticide and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the areas intended for treatment

A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line between 5,000 and 10,000 ppm. Normally use between 1 and a maximum of 2 gallons per 200 gallons of water.

Do not allow air in the line prior to injecting Quillaja Extract or density of Quillaja Extract will cause swelling of the line due to foam and prevent uptake of material. If a pesticide supply tank is used, add Quillaja Extract after water at least half full in the tank to prevent excessive foaming. Agitation should be minimized in the

supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30-60 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

It is highly recommended that the soil be wetted first with irrigation system to wet the soil profile and eliminate any dry areas under the irrigated area down to two feet of soil, thereafter Quillaja Extract should be applied in the last few hours of the irrigation, followed with enough clean out water run through the system to remove Quillaja Extract. There generally will be some level of foam at the base of the wetted area until it dissolves (generally within 30 minutes after application, depending on temperatures and amount of water following application).

Lack of effectiveness of Quillaja Extract or Crop Injury can result from non-uniform distribution of treated water.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

If you have any questions about calibration of this product, you should contact State Extension Service specialists, equipment manufacturers, chemigation experts or the Distributor of this product.



Avoid any runoff of this product in to waterways or ponds that would result in contamination of fish,

Posting is not necessary following application of this product when the label is accurately followed.

#### Non-Agricultural uses: Turfgrasses

Crop	Pest	Dosage Quillaja Extract
TURFGRASSES For use on golf courses and sod farms	<i>Anguina pacifica</i> nematode only	9.0 fl oz./1000 sq.ft. or 3.0 Gallons/Acre

Apply specified dosage in a minimum of 5-7 Gallons of water per 1000 sq.ft. (approximately 220-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

Quillaja Extract is water soluble and does not require additional water application through Sprinkler following application. Repeat application of Quillaja Extract every 5-10 days following first application. Additional applications to break the life cycle of the nematode should be repeated 2- 4 times within 60 days to significantly reduce this pest problem in one season.

Do not water turf or sod for at least 12 hours following application of Quillaja Extract.

Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply within 10 feet of any surface body of water or fairway surface drain.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

3 Gallons of Quillaja Extract in 300 Gallons of water is a 1% Solution of Quillaja Extract in water.  
3 Gallons of Quillaja Extract in 300 Gallons of water is 10,000 ppm of Quillaja Extract product in water.

### **LIMITED WARRANTY**

Manufacturer warrants that this product is suited for the labeled use when applied according to label directions. Manufacturer makes no warranty of merchantability. There are no warranties that extend beyond the description on this label and in no event shall the manufacturer be liable for any consequential damages.

*[ ] indicate optional text*

**Optional Label Claims:**

- **Controls and/or** Suppresses certain foliar diseases such as Powdery Mildew(s)
- Increases Crop Yield by Suppressing [Nematodes], [Powdery Mildew] and by stimulating root development
- Enhances Crop Yield and Growth of [Grapes] [Sweet Corn], [Berry] [Lilly Bulbs] [Lemon] Crops by Increasing [Numeric Counts] [Bunch Weights] [Height]
- Increases the Bulb Weight of [Lilly bulbs] [Easter Lilly bulbs]
- For use also on Vegetable Crops Such as: Carrots, Peppers, Tomatoes, Broccoli, Squash, and Beets.

# Quillaja Extract

A Bio-Pesticide

- *For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi and Enhancement of Plant Growth Development*
- *For use in vineyards, orchards and field crops*
- *For ornamental use to control plant parasitic nematodes*

Active Ingredient:

Quillaja saponins..... 7.50%

Other Ingredients ..... 92.50%

Total ..... 100.00%

**Keep Out of Reach of Children**

**CAUTION**

See back side for additional precautionary statements

EPA Reg. No.: XXXXX-XX

EPA Est. No.: XXXXX-XX-XX

Net Contents:

Manufactured for:  
Desert King Chile  
77 Antonio Bellet, Suite 401  
Providencia, Santiago  
Chile

<b>FIRST AID</b>	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION:** Harmful if swallowed and if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

### **ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### **Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

Long-sleeved shirt and long pants

Chemical-resistant gloves made of any waterproof material

Shoes and socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment and the restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas without protective clothing during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls

Chemical-resistant gloves made of any waterproof material

Shoes and socks

### **NON - AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### **Application:**

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### **Mixing:**

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with water, then add this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

#### **Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematicides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

#### **Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.

### Application Rates

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

**Table 1**

<b>QUILLAJA EXTRACT</b>		
<b>Rate Per Acre</b>		
<b>CROP</b>	<b>DOSAGE</b>	<b>COMMENT</b>
<b>Grapes</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 2.5 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4.0 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.



QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Strawberry</b>	<b>1.5 – 4 gallons</b>	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 1,000 to 5,000 or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	<b>2.5 – 4 gallons</b>	Apply 1 to 7 days prior to planting to area to be planted.
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng,	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
horseradish, potato, radish, turnip, yam		
<b>Ornamentals Bulbs</b>	<b>2.5 – 4 gallons</b>	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2

Table 2

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
<b>Grapes</b>	Powdery Mildew,	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.
<b>Avocado</b>	Root Rot, <i>Phytophthora cinnamoni</i>	2 – 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring when soil temperatures are optimum to root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.

Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Benefit	Dosage	Comment
<b>Grapes</b>	Increased Fruit yield and root development	1 – 2 qts	Apply at root flush and at 7-14 day intervals for 8 – 10 weeks.
<b>Citrus</b>	Increased Root Development	1 – 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
<b>Strawberry</b>	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 – 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.

For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.

**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of material that are compatible with pesticide and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the areas intended for treatment

A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line between 5,000 and 10,000 ppm. Normally use between 1 and a maximum of 2 gallons per 200 gallons of water.

Do not allow air in the line prior to injecting Quillaja Extract or density of Quillaja Extract will cause swelling of the line due to foam and prevent uptake of material. If a pesticide supply tank is used, add Quillaja Extract after water at least half full in the tank to prevent excessive foaming. Agitation should be minimized in the

supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30-60 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

It is highly recommended that the soil be wetted first with irrigation system to wet the soil profile and eliminate any dry areas under the irrigated area down to two feet of soil, thereafter Quillaja Extract should be applied in the last few hours of the irrigation, followed with enough clean out water run through the system to remove Quillaja Extract. There generally will be some level of foam at the base of the wetted area until it dissolves (generally within 30 minutes after application, depending on temperatures and amount of water following application).

Lack of effectiveness of Quillaja Extract or Crop Injury can result from non-uniform distribution of treated water.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

If you have any questions about calibration of this product, you should contact State Extension Service specialists, equipment manufacturers, chemigation experts or the Distributor of this product.

Avoid any runoff of this product in to waterways or ponds that would result in contamination of fish,

Posting is not necessary following application of this product when the label is accurately followed.

**Non-Agricultural uses: Turfgrasses**

Crop	Pest	Dosage Quillaja Extract
TURFGRASSES For use on golf courses and sod farms	<i>Anguina pacifica</i> nematode only	9.0 fl oz./1000 sq.ft. or 3.0 Gallons/Acre

Apply specified dosage in a minimum of 5-7 Gallons of water per 1000 sq.ft. (approximately 220-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

Quillaja Extract is water soluble and does not require additional water application through Sprinkler following application. Repeat application of Quillaja Extract every 5-10 days following first application. Additional applications to break the life cycle of the nematode should be repeated 2- 4 times within 60 days to significantly reduce this pest problem in one season.

Do not water turf or sod for at least 12 hours following application of Quillaja Extract.

Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply within 10 feet of any surface body of water or fairway surface drain.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

3 Gallons of Quillaja Extract in 300 Gallons of water is a 1% Solution of Quillaja Extract in water.  
3 Gallons of Quillaja Extract in 300 Gallons of water is 10,000 ppm of Quillaja Extract product in water.

### **LIMITED WARRANTY**

Manufacturer warrants that this product is suited for the labeled use when applied according to label directions. Manufacturer makes no warranty of merchantability. There are no warranties that extend beyond the description on this label and in no event shall the manufacturer be liable for any consequential damages.

*[ ] indicate optional text*

**Optional Label Claims:**

- **Controls and/or** Suppresses certain foliar diseases such as Powdery Mildew(s)
- Increases Crop Yield by Suppressing [Nematodes], [Powdery Mildew] and by stimulating root development
- Enhances Crop Yield and Growth of [Grapes] [Sweet Corn], [Berry] [Lilly Bulbs] [Lemon] Crops by Increasing [Numeric Counts] [Bunch Weights] [Height]
- Increases the Bulb Weight of [Lilly bulbs] [Easter Lilly bulbs]
- For use also on Vegetable Crops Such as: Carrots, Peppers, Tomatoes, Broccoli, Squash, and Beets.



# Quillaja Extract

A Bio-Pesticide

- *For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi and Enhancement of Plant Growth Development*
- *For use in vineyards, orchards and field crops*
- *For ornamental use to control plant parasitic nematodes*

Active Ingredient:

Quillaja saponins..... 7.50%

Other Ingredients ..... 92.50%

Total ..... 100.00%

**Keep Out of Reach of Children**

**CAUTION**

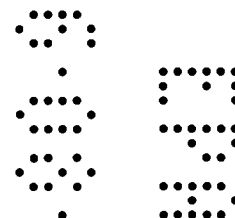
See back side for additional precautionary statements

EPA Reg. No.: XXXXX-XX

EPA Est. No.: XXXXX-XX-XX

Net Contents:

Manufactured for:  
Desert King Chile  
77 Antonio Bellet, Suite 401  
Providencia, Santiago  
Chile



Desert King  
Label Version (2); June 7, 2005  
Page 1 of 13

FIRST AID	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed and if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

Long-sleeved shirt and long pants

Chemical-resistant gloves made of any waterproof material

Shoes and socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **User Safety Recommendations**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

### **DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment and the restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas without protective clothing during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

Coveralls

Chemical-resistant gloves made of any waterproof material

Shoes and socks

### **NON - AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### **Application:**

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### **Mixing:**

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with water, then add this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

#### **Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematocides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

#### **Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.

### Application Rates

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

**Table 1**

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Grapes</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 2.5 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	<b>1.5 – 4 gallons</b>	On heavily infested soils apply at least 4.0 gal/acre on the first application. On light to moderately infested soils apply 2.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
<b>Strawberry</b>	<b>1.5 – 4 gallons</b>	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 1,000 to 5,000 or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	<b>2.5 – 4 gallons</b>	Apply 1 to 7 days prior to planting to area to be planted.
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng,	<b>2.5 – 4 gallons</b>	Apply prior to planting to row area to be planted.

QUILLAJA EXTRACT		
Rate Per Acre		
CROP	DOSAGE	COMMENT
horseradish, potato, radish, turnip, yam		
<b>Ornamentals Bulbs</b>	<b>2.5 – 4 gallons</b>	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2  
Table 2

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
<b>Grapes</b>	Powdery Mildew,	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 – 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infestation. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.
<b>Avocado</b>	Root Rot, <i>Phytophthora cinnamoni</i>	2 – 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring when soil temperatures are optimum to root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.

Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Benefit	Dosage	Comment
Grapes	Increased Fruit yield and root development	1 – 2 qts	Apply at root flush and at 7-14 day intervals for 8 – 10 weeks.
Citrus	Increased Root Development	1 – 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
Strawberry	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 – 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.

For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.



**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of material that are compatible with pesticide and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the areas intended for treatment

A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line between 5,000 and 10,000 ppm. Normally use between 1 and a maximum of 2 gallons per 200 gallons of water.

Do not allow air in the line prior to injecting Quillaja Extract or density of Quillaja Extract will cause swelling of the line due to foam and prevent uptake of material. If a pesticide supply tank is used, add Quillaja Extract after water at least half full in the tank to prevent excessive foaming. Agitation should be minimized in the

supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30-60 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

It is highly recommended that the soil be wetted first with irrigation system to wet the soil profile and eliminate any dry areas under the irrigated area down to two feet of soil, thereafter Quillaja Extract should be applied in the last few hours of the irrigation, followed with enough clean out water run through the system to remove Quillaja Extract. There generally will be some level of foam at the base of the wetted area until it dissolves (generally within 30 minutes after application, depending on temperatures and amount of water following application).

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**Non-Agricultural uses: Turfgrasses**

Crop	Pest	Dosage Quillaja Extract
TURFGRASSES For use on golf courses and sod farms	<i>Anguina pacifica</i> nematode only	9.0 fl oz./1000 sq.ft. or 3.0 Gallons/Acre

Apply specified dosage in a minimum of 5-7 Gallons of water per 1000 sq.ft. (approximately 220-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

Quillaja Extract is water soluble and does not require additional water application through Sprinkler following application. Repeat application of Quillaja Extract every 5-10 days following first application. Additional applications to break the life cycle of the nematode should be repeated 2- 4 times within 60 days to significantly reduce this pest problem in one season.

Do not water turf or sod for at least 12 hours following application of Quillaja Extract.

Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply within 10 feet of any surface body of water or fairway surface drain.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

3 Gallons of Quillaja Extract in 300 Gallons of water is a 1% Solution of Quillaja Extract in water.  
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*[ ] indicate optional text*

**Optional Label Claims:**

- **Controls and/or** Suppresses certain foliar diseases such as Powdery Mildew(s)
- Increases Crop Yield by Suppressing [Nematodes], [Powdery Mildew] and by stimulating root development
- Enhances Crop Yield and Growth of [Grapes] [Sweet Corn], [Berry] [Lilly Bulbs] [Lemon] Crops by Increasing [Numeric Counts] [Bunch Weights] [Height]
- Increases the Bulb Weight of [Lilly bulbs] [Easter Lilly bulbs]
- For use also on Vegetable Crops Such as: Carrots, Peppers, Tomatoes, Broccoli, Squash, and Beets.

